

What is Claimed is:

1. A foam dispenser component drive mechanism comprising:
a foam dispenser component drive transmission comprising a crank and slide assembly.
2. The drive mechanism of claim 1, wherein said drive transmission includes a
5 transmission housing and said crank and slide assembly includes a crank pivotably supported by
said housing and a slide assembly.
3. The drive mechanism of claim 2 wherein said slide assembly comprises a
connecting rod driven by said crank and a slide member driven by said connecting rod.
4. The drive mechanism of claim 3 wherein said slide member comprises
10 engagement means for engagement with a reciprocating dispenser mixing module rod.
5. The drive mechanism of claim 4 wherein said engagement means comprises an
engagement slot designed to receive and retain an enlarged engagement head of the mixing
module rod.
6. The drive mechanism of claim 3 wherein said slide member is in sliding
15 engagement with a guide shoe supported by said housing and of a material of a lower friction
coefficient level than that of said housing.
7. The drive mechanism of claim 3 wherein said slide member is a multi-walled
piston member in sliding engagement with a pair of guide shoes supported by said housing.
8. The drive mechanism of claim 3 further comprising a connection pin, said
20 connecting rod having a first looped end in engagement with said crank and a second looped end,
said connection pin extending into said second looped end and into engagement with said slide
member.

9. The drive mechanism of claim 8 wherein said crank includes a first crank component and a second crank component releasably interconnected with said first crank component, and said first and second components being detachable and interconnectable to provide for engagement of said crank with the first looped end of said connection rod.

5 10. The drive mechanism of claim 2 further comprising first and second bearings wherein said crank includes a first extension and a second extension, and said housing includes a first bearing reception recess receiving said first bearing and first extension and a second bearing reception recess receiving said second bearing and second extension.

10 11. The drive mechanism of claim 10 wherein said housing includes a main housing section and a detachable cap housing section with said main housing section defining said first reception recess and said cap housing section defining said second reception recess.

12. The drive mechanism of claim 1, wherein said drive transmission comprises a driver, and a drive shaft in line between said driver and the crank and slide assembly, with said drive shaft driving said crank and slide assembly.

15 13. The drive mechanism of claim 12 further comprising a flex coupling positioned in line between said drive shaft and crank and slide assembly.

14. The drive mechanism of claim 12 further comprising a one way clutch in line between said driver and crank and slide assembly.

20 15. The drive mechanism of claim 14 wherein said driver is reversible in drive rotation direction and said drive mechanism further comprising a secondary drive transmission which is activated/deactivated depending on direction of drive rotation.

16. The drive mechanism of claim 1 further comprising a driver and wherein said driver is a DC brushless motor.

17. The drive mechanism of claim 1 further comprising a home sensor positioned in drive transmission line for monitoring a position status of a component in said drive mechanism.

18. The drive mechanism of claim 1 further comprising a home sensor which senses a position of a component that is of said drive transmission or is driven by said drive transmission
5 and positioned downstream of a crank in said crank and slide mechanism.

19. The drive mechanism of claim 18 further comprising a driver in driving engagement with said drive transmission and wherein said driver includes an encoder.

20. The drive mechanism of claim 1 wherein said driver includes a motor generating 10,000 lbf. of drive force on the dispenser component.

10 21. The drive mechanism of claim 1 wherein said housing includes means for receiving a mixing module and means for feeding foam precursor chemical to said mixing module.

22. A foam dispenser drive system for a mixing module reciprocation rod, comprising:

15 a driver; and
means for converting a rotational drive force into a linear reciprocation drive force.

23. The drive system of claim 22 wherein said linear drive force has a linear direction coincident with a linear reciprocation of a mixing module rod reciprocated by said drive system.

24. The drive system of claim 23, wherein said means for converting a rotational
20 drive force into a linear drive force includes a crank and slider mechanism.

25. The drive system of claim 24 wherein said crank and slider mechanism includes a sliding member with engagement means for engagement with said mixing module rod.

26. The drive system of claim 25 wherein said sliding member is a piston with a slot dimensioned for catching engagement with the mixing module rod.

27. The drive system of claim 26 further comprising a pair of guide shoes and wherein said piston is in sliding engagement with said pair of guide shoes.

5 28. The drive system of claim 24 further comprising a dispenser transmission housing, and wherein said crank and slider mechanism includes a crank driven by said driver, a connection rod having a first end in connection with a crank pin section of said crank and a second end in engagement with a slider member of said crank and slider mechanism.

29. An apparatus for driving a reciprocating rod of a foam dispenser mixing module,
10 comprising:

a drive shaft;

a crank driven by said drive shaft;

a slider assembly driven by said crank, and

a mixing module rod engagement section.

15 30. The apparatus of claim 29 wherein said slider assembly comprises a slide piston and a connecting rod having a first end connected with said crank and a second end connected with said slide piston.

31. The apparatus of claim 30 wherein said engagement section includes a slotted section in said slide piston.

20 32. The apparatus of claim 29 further comprising one way clutch in driving engagement with said drive shaft.

33. The apparatus of claim 31 further comprising a flex coupling provided with said drive shaft.

34. An apparatus for driving a reciprocating rod of a foam dispenser having a full retraction position and a full extension position relative to a mixing module of the dispenser, comprising:

a driver;

5 drive transmission means with said drive transmission means being arranged to coincide maximum rod reciprocation force application coincident with the full extension and full retraction positions of the reciprocating rod.

35. A method for reciprocating a mixing module reciprocation component, comprising:

10 rotating a crank with a drive assembly;

driving a slide assembly with the rotating crank so as to move in linear fashion, and

moving the reciprocation component together with said slide assembly.

36. The method of claim 35 further comprising monitoring a position of said reciprocating component either directly or indirectly with a home sensor.

15 37. The method of claim 36 wherein said drive assembly includes a driver motor with encoder and said method further comprising using the encoder to further monitor positioning of said reciprocation component.

38. The method of claim 35 further comprising using an encoder to further monitor positioning of said reciprocation component.

20 39. A system for monitoring the position of a mixing module reciprocation member comprising:

a drive transmission assembly,

an encoder for monitoring movement of a component being moved by said drive transmission assembly, and

a home sensor for monitoring movement of a component being moved by said drive transmission assembly.

5 40. The system of claim 39 wherein said drive transmission assembly includes a drive transmission and a drive motor with the encoder, said drive motor being in driving engagement with said drive transmission and said home sensor being positioned for monitoring movement of a component driven by said drive transmission.

10 41. The system of claim 40 wherein said drive transmission includes a crank and slider mechanism.